

---

# **Portfolio Evaluation Ltd**

## **Worcestershire County Council Pension Fund**

### **Investment Overview 2016/17**

---

June 2017

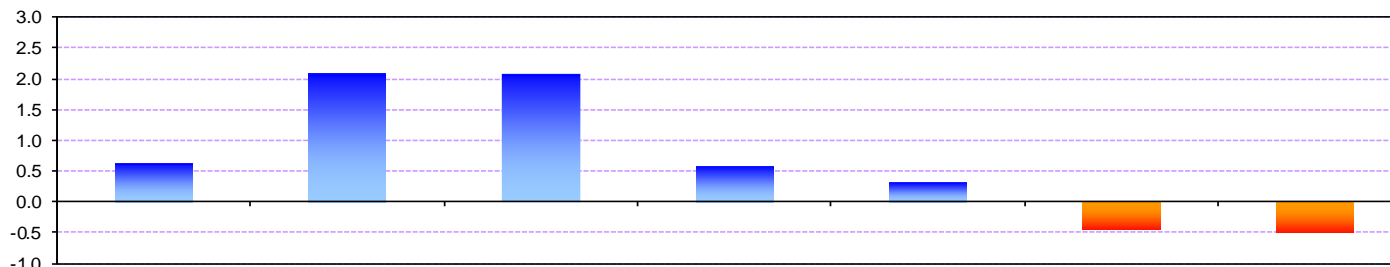
# Overview of Today

---

- Market Review
  - Asset class results
  - Themes
  - Market trends and developments
- Evaluation of the Worcestershire County Council Pension Fund results
  - Total fund results (short and long term)
  - Attribution of 2016/17 results

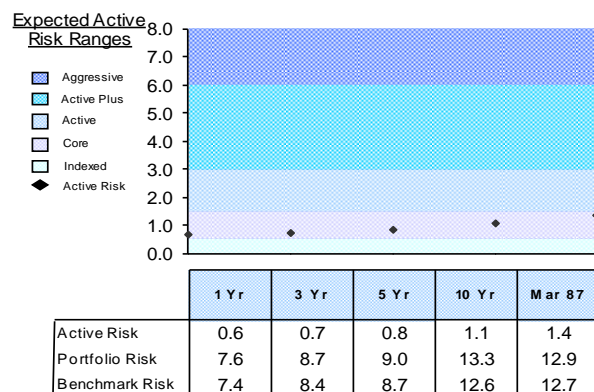
# Total Fund Results – Ending March 2017

**Excess Return Analysis (%)**

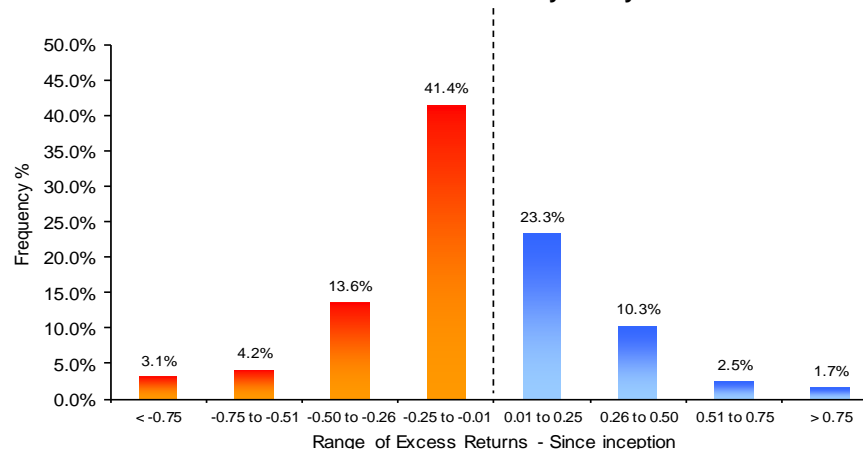


All returns for periods in excess of 1 year are annualised.

**Ex-Post Active Risk Analysis (%)**

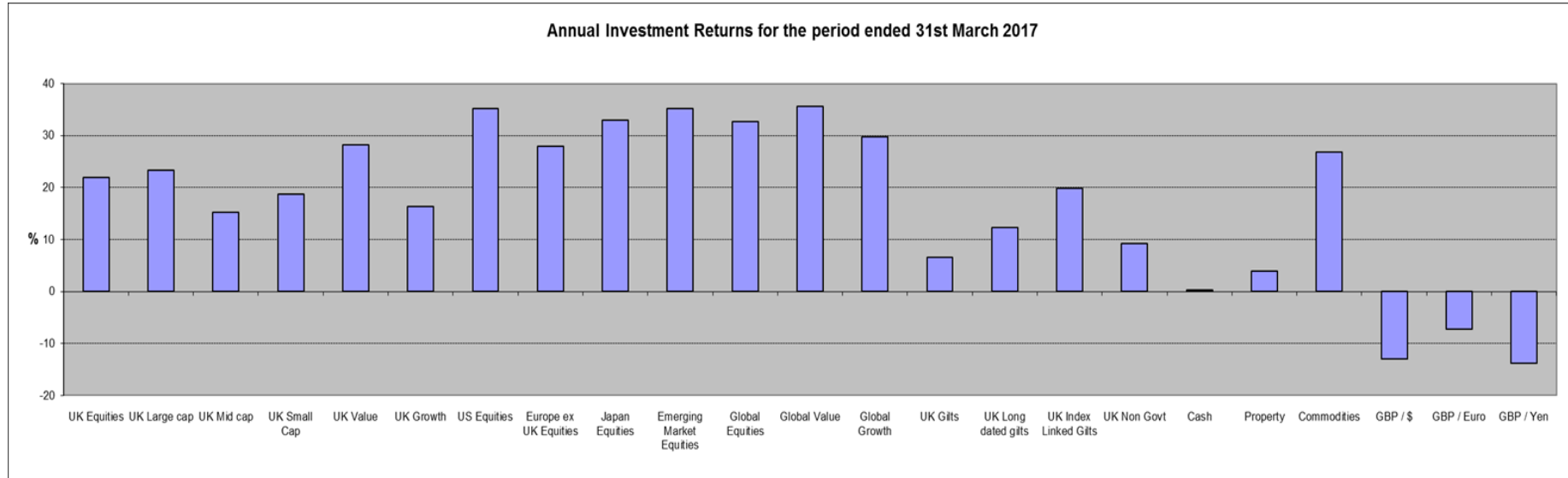


**Excess Return Consistency Analysis**



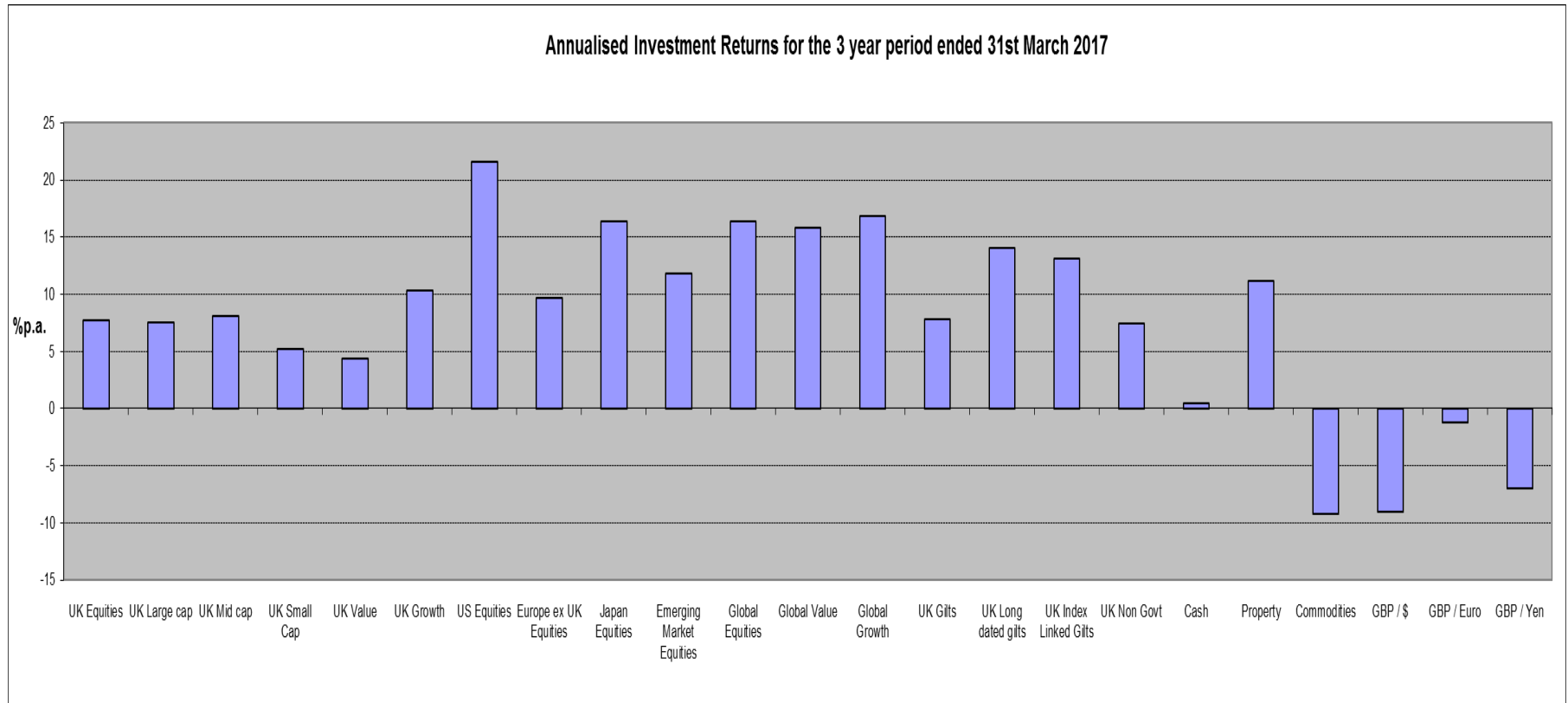
- Positive real returns generated by the Fund over all time periods.
- Positive excess over 1 year, 3 years and 5 years.
- Returns in excess of cash and inflation

# Market Results – Year Ended March 2017



- High returns due to global economic growth, Brexit and subsequent sterling depreciation
- Loose monetary policy good for markets but bad for savers
- QE beginning to end should result in increasing bond yields.
- Divergent results regionally and between sectors, however increasing signs of convergence
- Market risk increased in 2016 but has plateaued recently

# Market Results - Three Years Ended March 2017



- Strong returns from markets
- Sterling depreciation a significant return generator
- Impact of QE beneficial from a returns perspective

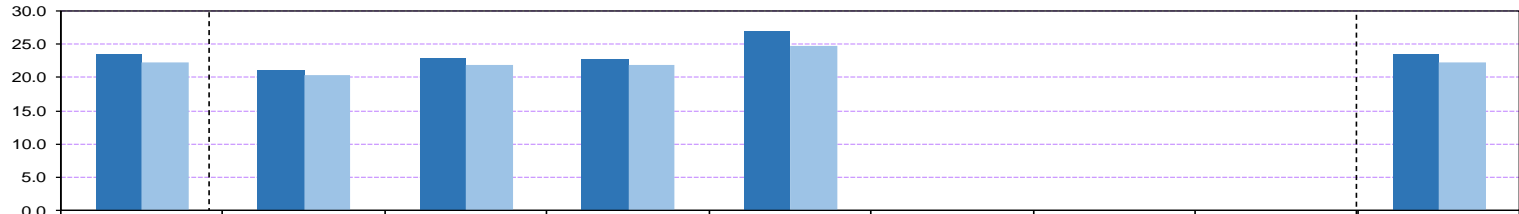
# Client Trends and Developments

---

- Fund activity;
  - Growth in investments within 'Alternative Asset Classes' including Infrastructure and Private Debt.
  - Property, absolute return funds and private equity funds have performed well and returns are becoming in line with long term targets;
  - Increased exposure to alternative benchmark index strategies such as RAFI
  - Removal of underperforming managers increased partly because of limited time to make up differential because of pooling (these assets typically have been indexed)
  - Investment fees reducing.
  
- Local Government Pension Scheme Pooling
  - Currently in early stages
  - Transition due in 2018 / 19
  - Impact on investment managers
  - Fee pressures
  
- WM Company have withdrawn from performance measurement business unless they are your custodian
  - Impact is on many local authorities and charities
  - May lead to opportunities for investment managers as will generate questioning of practises.

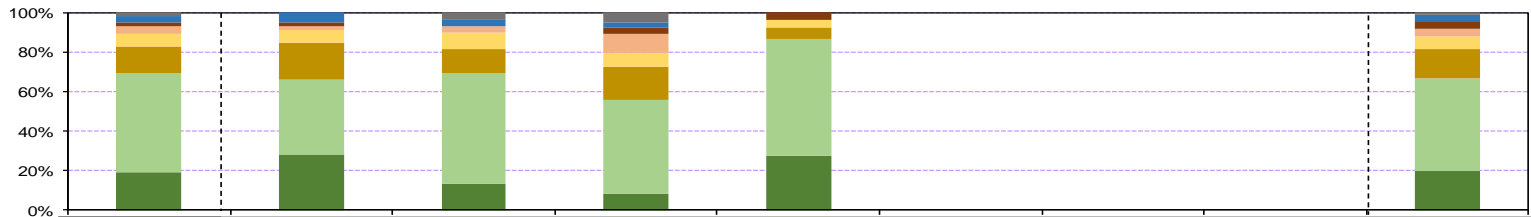
# Universe Performance Midlands Pool for 1 Year Ended 31st March 2017

## RETURN ANALYSIS (%)



RETURN (%)	MIDLANDS POOL	DERBYSHIRE	STAFFORDSHIRE	WEST MIDLANDS	WORCESTERSHIRE	A	B	C	TOTAL LOCAL AUTHORITY POOL
EXCESS	1.2	0.8	0.9	0.8	2.1				1.0
FUND	23.3	21.1	22.9	22.6	26.7				23.4
BENCHMARK	22.2	20.3	21.9	21.8	24.7				22.3

## ASSET ALLOCATION (% WEIGHT)



ASSET ALLOCATION (%)	MIDLANDS POOL	DERBYSHIRE	STAFFORDSHIRE	WEST MIDLANDS	WORCESTERSHIRE	A	B	C	TOTAL LOCAL AUTHORITY POOL
OTHERS	2.2	0.0	3.6	5.1	0.0				1.0
CASH	2.9	5.4	3.6	2.7	0.0				3.4
INFRASTRUCTURE	2.1	1.8	0.0	2.9	3.6				3.6
PRIVATE EQUITY	3.6	1.7	3.1	9.5	0.0				4.1
PROPERTY	6.6	6.3	8.1	7.6	4.2				6.7
FIXED INCOME	13.4	18.8	12.7	16.5	5.6				14.2
OVERSEAS EQ	50.0	38.1	55.3	47.4	59.3				47.0
UK EQUITY	19.3	28.0	13.7	8.3	27.3				20.0

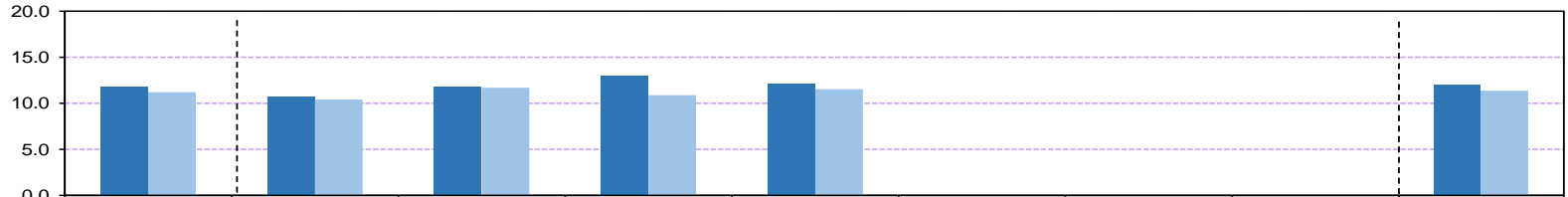
MARKET VALUE (£m)	MIDLANDS POOL	DERBYSHIRE	STAFFORDSHIRE	WEST MIDLANDS	WORCESTERSHIRE	A	B	C	TOTAL LOCAL AUTHORITY POOL
	25,699	4,450	4,584	14,213	2,453				73,906

# Universe Performance

## Midlands Pool

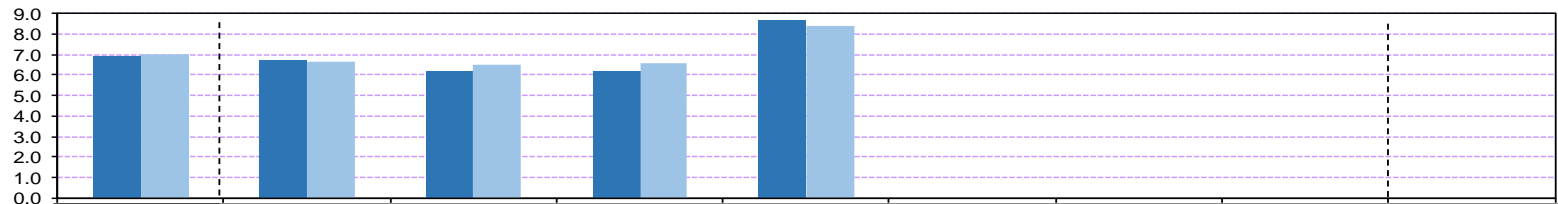
### 3 Year Risk and Return Data

#### RETURN ANALYSIS (%)



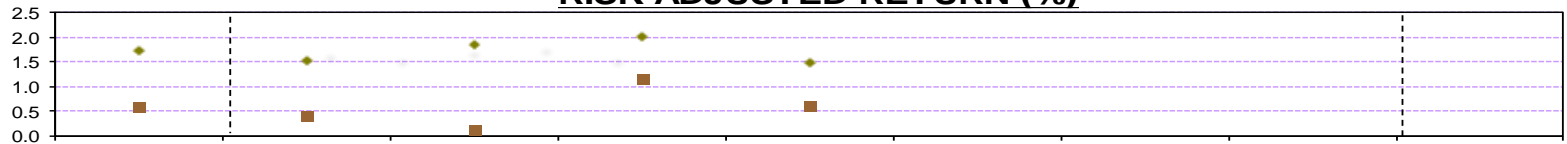
RETURN (%)	MIDLANDS POOL	DERBYSHIRE	STAFFORDSHIRE	WEST MIDLANDS	WORCESTERSHIRE	A	B	C	TOTAL LOCAL AUTHORITY POOL
EXCESS	0.8	0.3	0.1	2.0	0.6				0.7
FUND	11.9	10.7	11.8	13.0	12.1				12.0
BENCHMARK	11.1	10.4	11.7	10.9	11.5				11.3

#### RISK ANALYSIS (%) - EX POST



RISK (%)	MIDLANDS POOL	DERBYSHIRE	STAFFORDSHIRE	WEST MIDLANDS	WORCESTERSHIRE	A	B	C	TOTAL LOCAL AUTHORITY POOL
ACTIVE	1.1	0.9	1.2	1.8	0.7				
FUND	7.0	6.7	6.2	6.2	8.7				
BENCHMARK	7.0	6.6	6.5	6.6	8.4				

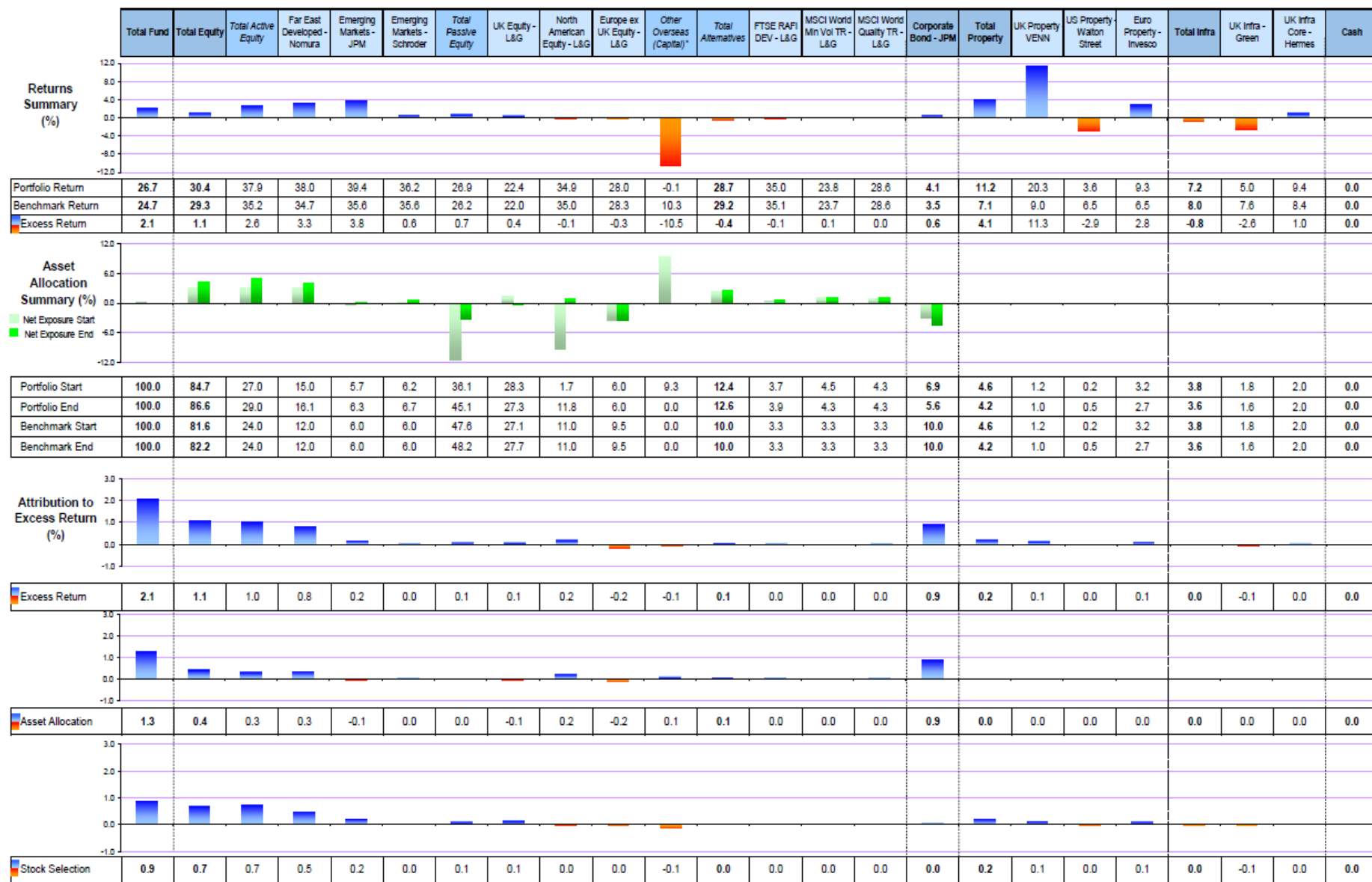
#### RISK ADJUSTED RETURN (%)



RISK ADJUSTED RETURN (Average Over 3 Yr Period)	MIDLANDS POOL	DERBYSHIRE	STAFFORDSHIRE	WEST MIDLANDS	WORCESTERSHIRE	A	B	C	TOTAL LOCAL AUTHORITY POOL
IR	0.6	0.4	0.1	1.1	0.6				
SHARPE	1.7	1.5	1.8	2.0	1.5				



# Contribution to Total Fund Excess Return Analysis - Year Ending March 2017



# Fund and Portfolio Summary Page- Year Ending March 2017

	Benchmark	Incep Date	Market Value (£m)	Weight	QTR			Year To Date			1 Year			3 Year			5 Year			10 Year			Since Inception		
					PF	BM	ER	PF	BM	ER	PF	BM	ER	PF	BM	ER	PF	BM	ER	PF	BM	ER	PF	BM	ER
<b>Total Equity Fund</b>	<b>Client Specific Weighted Index</b>	<b>Mar-16</b>	<b>2,124.3</b>	<b>86.6</b>	<b>6.2</b>	<b>5.8</b>	<b>0.4</b>	<b>30.4</b>	<b>29.3</b>	<b>1.1</b>	<b>30.4</b>	<b>29.3</b>	<b>1.1</b>										<b>30.4</b>	<b>29.3</b>	<b>1.1</b>
<i>Total Active Equity Fund</i>	<i>Client Specific Weighted Index</i>	<i>Mar-16</i>	<i>710.7</i>	<i>29.0</i>	<i>8.9</i>	<i>7.9</i>	<i>1.0</i>	<i>37.9</i>	<i>35.2</i>	<i>2.6</i>	<i>37.9</i>	<i>35.2</i>	<i>2.6</i>										<i>37.9</i>	<i>35.2</i>	<i>2.6</i>
Far East Developed Fund - Nomura	FTSE Developed Asia Pacific Index	Feb-03	393.9	16.1	8.6	6.9	1.8	38.0	34.7	3.3	38.0	34.7	3.3	17.1	15.6	1.4	11.7	11.2	0.6	8.1	8.0	0.1	11.3	11.3	0.1
Emerging Markets Fund - JPM	FTSE All World Emerging Market Index	Dec-11	153.4	6.3	10.2	8.9	1.3	39.4	35.6	3.8	39.4	35.6	3.8	13.4	12.9	0.6	7.1	6.6	0.5				8.8	8.3	0.5
Emerging Markets Fund- Schroder	FTSE All World Emerging Market Index	Oct-11	163.4	6.7	8.3	8.9	-0.6	36.2	35.6	0.6	36.2	35.6	0.6	13.5	12.9	0.6	8.2	6.6	1.6				9.0	7.3	1.7
<i>Total Passive Equity Fund</i>	<i>Client Specific Weighted Index</i>	<i>Mar-16</i>	<i>1,105.6</i>	<i>45.1</i>	<i>4.8</i>	<i>4.9</i>	<i>0.0</i>	<i>26.9</i>	<i>26.2</i>	<i>0.7</i>	<i>26.9</i>	<i>26.2</i>	<i>0.7</i>										<i>26.9</i>	<i>26.2</i>	<i>0.7</i>
UK Equity Fund - L&G	FTSE All Share Index	Dec-15	668.9	27.3	4.3	4.0	0.3	22.4	22.0	0.4	22.4	22.0	0.4										19.8	19.4	0.4
North American Equity Fund- L&G	FTSE All World North American Index	Dec-15	289.4	11.8	4.8	4.8	0.0	34.9	35.0	-0.1	34.9	35.0	-0.1										32.3	32.4	-0.1
Europe ex UK Equity Fund- L&G	FTSE Developed Europe Ex. UK Index	Dec-15	147.3	6.0	7.3	7.4	-0.1	28.0	28.3	-0.3	28.0	28.3	-0.3										24.2	24.5	-0.3
<i>Total Alternatives Fund</i>	<i>Client Specific Weighted Index</i>	<i>Mar-16</i>	<i>308.0</i>	<i>12.6</i>	<i>5.2</i>	<i>5.2</i>	<i>0.0</i>	<i>28.7</i>	<i>29.2</i>	<i>-0.4</i>	<i>28.7</i>	<i>29.2</i>	<i>-0.4</i>										<i>28.7</i>	<i>29.2</i>	<i>-0.4</i>
FTSE RAFI DEV Fund - L&G	FTSE RAFI Developed 1000 QSR Net Index	Dec-15	95.1	3.9	3.8	3.8	0.0	35.0	35.1	-0.1	35.0	35.1	-0.1										31.8	31.8	-0.1
MSCI World Min Vol TR Fund - L&G	MSCI World Minimum Volatility Net Index	Dec-15	106.5	4.3	5.0	5.0	0.0	23.8	23.7	0.1	23.8	23.7	0.1										28.8	28.8	0.0
MSCI World Quality TR Fund - L&G	MSCI World Quality Total Return Net Index	Dec-15	106.3	4.3	6.8	6.8	0.0	28.6	28.6	0.0	28.6	28.6	0.0										27.6	27.6	0.0
<b>Corporate Bond Fund- JPM</b>	<b>Bardclays Capital Global Aggregate - Ex Treasury, Ex Government Related 100% Hedged to GBP</b>	<b>Mar-03</b>	<b>137.8</b>	<b>5.6</b>	<b>1.1</b>	<b>1.0</b>	<b>0.1</b>	<b>4.1</b>	<b>3.5</b>	<b>0.6</b>	<b>4.1</b>	<b>3.5</b>	<b>0.6</b>	<b>4.3</b>	<b>4.0</b>	<b>0.3</b>	<b>4.2</b>	<b>4.0</b>	<b>0.2</b>	<b>6.0</b>	<b>6.4</b>	<b>-0.4</b>	<b>5.3</b>	<b>5.6</b>	<b>-0.3</b>
<b>Total Property Fund</b>	<b>Client Specific Weighted Index</b>	<b>Mar-16</b>	<b>102.2</b>	<b>4.2</b>	<b>3.2</b>	<b>1.7</b>	<b>1.5</b>	<b>11.2</b>	<b>7.1</b>	<b>4.1</b>	<b>11.2</b>	<b>7.1</b>	<b>4.1</b>										<b>11.2</b>	<b>7.1</b>	<b>4.1</b>
UK Property Fund - VENN	Absolute Return +9%	Jul-15	23.4	1.0	12.7	2.2	10.5	20.3	9.0	11.3	20.3	9.0	11.3										14.1	9.4	4.7
US Property Fund- Walton Street	Absolute Return + 6.5%	Jan-16	12.1	0.5	-1.2	1.6	-2.8	3.6	6.5	-2.9	3.6	6.5	-2.9										4.7	5.6	-0.9
Euro Property Fund- Invesco	Absolute Return + 6.5%	Feb-16	66.7	2.7	0.9	1.6	-0.7	9.3	6.5	2.8	9.3	6.5	2.8										10.9	5.9	5.1
<b>Total Infrastructure Fund</b>	<b>Client Specific Weighted Index</b>	<b>Mar-16</b>	<b>88.3</b>	<b>3.6</b>	<b>1.5</b>	<b>1.9</b>	<b>-0.5</b>	<b>7.2</b>	<b>8.0</b>	<b>-0.8</b>	<b>7.2</b>	<b>8.0</b>	<b>-0.8</b>										<b>7.2</b>	<b>8.0</b>	<b>-0.8</b>
UK Infrastructure Fund - Green	Absolute Return +7.6%	Apr-15	38.9	1.6	0.0	1.8	-1.8	5.0	7.6	-2.6	5.0	7.6	-2.6										2.9	7.6	-4.7
UK Infrastructure Core Fund - Hermes	Absolute Return +8.4%	May-15	49.4	2.0	2.9	2.0	0.9	9.4	8.4	1.0	9.4	8.4	1.0										8.7	8.4	0.4
<b>Worcestershire CC Total Fund</b>		<b>Mar-87</b>	<b>2,452.6</b>	<b>100.0</b>	<b>5.6</b>	<b>5.0</b>	<b>0.6</b>	<b>26.7</b>	<b>24.7</b>	<b>2.1</b>	<b>26.7</b>	<b>24.7</b>	<b>2.1</b>	<b>12.1</b>	<b>11.5</b>	<b>0.6</b>	<b>11.1</b>	<b>10.8</b>	<b>0.3</b>	<b>6.7</b>	<b>7.2</b>	<b>-0.5</b>	<b>8.2</b>	<b>8.7</b>	<b>-0.5</b>

PF = Portfolio Return BM = Benchmark Return ER = Excess Return

# Summary

---

- The Fund has outperformed its benchmark over the one, three and five year periods.
- Over the one year the Fund has outperformed due to;
  - Asset allocation as it has been overweight equities and underweight bonds (especially Far Eastern equities);
  - Stock selection as all active equity and fixed income and property has outperformed. Only Infrastructure underperformed but its impact on the Total Fund has been negligible to date.
- The Fund has achieved a higher return than the average of the Midlands Pool and the PE Local Authority Universe average. This reflects the high equity content of the Fund. It has also achieved a good information ratio and Sharpe ratio (risk and return ratios).
- Total risk remains low and active risk is at a level that is consistent with the structure of the Fund and its equity bias. Risk has remained stable over the year.
- The Fund has outperformed our average pension fund return with less risk over the three and five year period

# **Appendix 1**

## **Introduction to Performance Measurement**

---

# Performance Evaluation – Purpose

- Performance measurement and evaluation should enhance:
  - Reporting and governance procedures
  - Monitoring and decision making function of Funds
  - Dialogue between clients, investment managers and consultants
  - Comply with the CFA Institute guidelines for Effective Investment Reporting
- Key question 1 - Has the Fund and the portfolios met their objectives?
  - What is the expected and realised investment return?
  - How much risk is there?
  - Have I been rewarded for the risk that has been taken?
  - How efficient is the manager?
  - Have I had value for money
- Key question 2 - Is the Fund and its portfolios being managed as expected?
  - What are the sources of my risk and return?
  - Are they consistent with the managers style and process?
  - Is there anything else influencing the portfolio (incidental bets)?
  - What is the cost?
- Key question 3 - Is the mix of managers in the Fund working efficiently ?

# The Pension Fund Management & the Role of Investment Performance Analysis

<b>Pension Fund Investment Review Process</b>		
<b>Process Step</b>	<b>Description</b>	<b>Performance Evaluation role</b>
Actuarial input / requirements	Liability based requirements including required return, risk profile, funding levels etc	Monitor risk and return relative to required return to meet liabilities
Investment objectives	Based on liability inputs and Trustee requirements (risk aversion etc), return, investment restrictions. This determines a long term return / risk profile for the Fund	Ensure the Fund and portfolios meet the required risk and return profile and any constraints / restrictions are met.
Investment strategy	Identifies the asset allocation across asset classes required to meet the investment objectives. This will define a broad market based investment benchmark that will track the investment strategy	Ensure the asset allocation tracks the investment strategy. Measures the risk return profile of the benchmark.
Investment structure	Identifies the type (e.g. pooled / segregated) of mandate, type of management (style / active / passive). Also identifies the amount of assets to be allocated. The sum of this should equal the investment strategy.	Ensures that the investment structure is being tracked and that the portfolios and Fund are being managed as expected.
Investment manager	The selected investment manager and their products required to meet the structure. Each portfolio has a role within the structure	Detailed analysis of portfolios ensures that objectives and constraints are being met and that the portfolios are doing as expected

# Investment Performance Analysis – Key Concepts 1

Investment Performance Analysis – Key Concepts		
Concept	Description	How measured
Benchmark	Provides a framework for both the structure and risk of portfolios and the expected return of Funds and portfolios. Are key as they articulate the investment strategy of the Fund	Typically benchmarks are market indices of a group of securities; these reflect the universe of securities available to a manager. Alternatively they can be based on a broad index such as RPI that reflects the risk return characteristics of an asset class.
Objective	The objective defines the performance, risk and management style of a portfolio / fund	This is measured by evaluating the portfolio and its characteristics relative to those of the benchmark
Return measurement	Primary measurement that identifies the growth in market value. Used to measure the growth in a portfolio or benchmark	We use the time weighted rate of return for portfolio measurement (as opposed to the money weighted return – also known as Internal Rate of Return) as this compensates for the impact of cashflow allowing for comparison with benchmarks. Typically the higher the return the better
Risk measurement	Evaluates the volatility in the market value (cash adjusted) of a portfolio.	This can be calculated on an ex-post basis (uses the observed return series of a portfolio) or an ex-ante basis (which uses the current holdings of a portfolio is calculated using the historic returns and characteristics of securities) and is therefore considered a modelled risk number. These are expressed as an annualised 1 standard deviation number e.g. a portfolio risk of 10% indicates that the portfolio would have a return within 10% of that of cash two thirds of the time over a one year period.

# Investment Performance Analysis – Key Concepts 2

Investment Performance Analysis – Key Concepts		
Concept	Description	How measured
Excess return	The return that is the difference between the portfolio and that of the benchmark. This can be positive or negative.	Is the return of a portfolio over a period of time minus the return of the benchmark (arithmetic basis) is the most common methodology. It can also be calculated geometrically (i.e. the portfolio return is divided by the benchmark return).
Active risk	This identifies the magnitude of the difference between the composition of a portfolio / fund and that of the benchmark / investment strategy. Typically the larger the active risk the greater the difference in the structure of the portfolio relative to the benchmark e.g. an index fund should have a low active risk.	Can be calculated ex post by measuring the volatility of the excess returns or calculated models. The results are expressed as an annualised standard deviation; for example an active risk of 2% results in our expecting the return of the portfolio to be within 2% of the return of the benchmark two thirds of the time.
Risk adjusted returns	A measure of efficiency as it identifies the return per unit of risk. Two are typically used, namely the Sharpe Ratio and Information Ratio. Typically the higher the ratio the more efficient the management.	The Information Ratio is calculated by dividing the excess return by the active risk and as such measures the efficiency of active management. The Sharpe Ratio is calculated by dividing the portfolio return minus the risk free rate (cash) by the volatility of the portfolio return.
% per annum	Investment returns in excess of one year are typically expressed as % per annum. This permits easier comprehension and comparison.	



# Investment Performance Analysis – Key Concepts 3

Investment Performance Analysis – Key Concepts		
Concept	Description	How measured
Attribution	Permits us to evaluate the sources of a portfolio or fund return. Common sources evaluated are asset allocation (are the right markets / sectors/ styles being selected) and stock selection (does the manager chooses good performing stocks). Used to identify if a portfolio is generating returns from expected sources.	This can be quite complicated but is based on comparing weights allocated and returns from an asset class and comparing them to those of the benchmark.
Diversification	Measures the impact of investing in a range of securities, managers and / or asset classes. This is particularly relevant for analysing the efficiency from a risk perspective of the investment strategy of a Fund or portfolio. Also identifies if a portfolio has too many securities (over diversified).	Typically calculated via risk models
Investment style	Identifies the type of style e.g. index fund, active manager, small or large capitalisation stock bias, value or growth stock bias. Used to identify if a portfolio is generating returns from expected sources.	Calculated from numerous sources.